

In the Eye of the Storm

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Valorization

Natural disasters impose tremendous risks to people's lives. Throughout history, human beings have developed various methods to prevent natural hazards and to reduce the negative impact in the aftermath. In modern times, thanks to financial innovations, people can use insurance and can buy and sell insurance-equivalent financial instruments such as cat bonds to reduce losses. Notwithstanding these financial innovations, traditional bank credit supply and government assistance still play a vital role in disaster mitigation (Kunreuther and Linnerooth-Bayer, 2003; Linnerooth-Bayer and Hochrainer-Stigler, 2015; Beck et al., 2010). We need to know more about how financial institutions and government services can reduce the impact of disasters. This dissertation contributes to this goal by studying how banks react to natural hazards in long and short terms and the role of good governance in limiting disaster damage.

Chapter 2 has three contributions. First, this study is the first to choose the long-term view to examine disasters' impact on banks. On the one hand, we can understand whether the balance sheet structure can be explained by banks' disaster experiences. Banks that repeatedly experience disaster-related defaults tend to purposefully contract their real estate lending, imposing a negative impact on the economy. On the other hand, we can also explore the evolution of other non-financial sectors. Intense disaster experiences may lead to reallocation of economic activities from one county to another. I indeed find that, in the long run, residents reduce their savings and their real estate borrowing. The long-run analysis therefore captures a gradual demographic and economic evolution. Second, I show that strong disaster experiences lead banks to reduce their lending to low-income borrowers. This finding reveals the existence of disaster-driven lending bias, and therefore, government intervention is crucial in protecting economically disadvantaged groups. Third, by showing that banks have longer memory for past events than individuals do, the chapter implies that institutions are slow in adapting themselves to new situations, making it necessary for policy makers to intervene.

The contributions of Chapter 3 consist of an empirical one and a theoretical one. On the empirical side, I show that credit allocation after natural disasters obeys the law of demand and supply. More specifically, banks issue more loans because of the increase in interest rates, and sell government bonds to finance the increased credit demand. On the theoretical side, my model explains these empirical findings and sheds light on the effect of climate change on banks' capital structure. To my knowledge, my model is the first in the credit rationing literature to characterize the interaction among assets. The practical lesson from this chapter

is that, by strategically allocating assets, bank can ensure a stable income and satisfy the needs of the community.

Chapter 4 contributes to the understanding of the role of good governance in disaster relief. First and foremost, the stochastic frontier model offers a benchmark for comparing countries that differ enormously in their economic and natural conditions. Second, by unifying multiple measures of disaster cost into a single estimation model, I find a trade-off between the number of people killed and the economic damage incurred. I show that the rise in efficiency implies a decrease in mortality but an increase in the material damage. Put differently, to be efficient means to be humane in institutions. The third contribution relates to the finding that institutional variables, especially those that reflect good governance, positively predict disaster-relief efficiency. This finding points out that, if a country wants to increase its disaster-relief efficiency, reforming its institutions is a possible way to achieve that goal.